



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/877,654	06/08/2001	Luis Orlando Puigcerver	NC065-US1/5487-123	9502

7590 11/14/2003
Marguerite E. Gerstner
Tyco Electronics Corporation
Intellectual Property Department
307 Constitution Drive, M/S R20/1B
Menlo Park, CA 94025-1164

EXAMINER

POKER, JENNIFER A

ART UNIT	PAPER NUMBER
----------	--------------

2832

DATE MAILED: 11/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/877,654

Applicant(s)

PUIGCERVER ET AL.

Examiner

Jennifer A. Poker

Art Unit

2832

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 July 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-72 is/are pending in the application.
- 4a) Of the above claim(s) 9-13, 26 and 40-55 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 56-58 and 69-72 is/are allowed.
- 6) ☒ Claim(s) 1-6, 14-23, 27-37 and 59-68 is/are rejected.
- 7) ☒ Claim(s) 7, 8, 24, 25, 38 and 39 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

General Status

1. This is a second action on the merits of amendment received July 7, 2003 of application filed on June 8, 2001. Claims 1-72 are pending, while claims 1-9, 14-25, 27-39, and 57-72 are being examined. Claims 9-13, 26, 40-55 are drawn to non-elected claims.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

3. Claim 60 and 65 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant states, "...around all of a corresponding one of the sharp edges." It was unclear what this limitation meant. Examiner understood it to mean that the protection members extend circumferentially around all the cores sharp edges.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2832

5. Claims 1, 2, 5, 6, 18, 23, 29, 32, 37, and 59-68, are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Number 5,353,494 to Bisbee, et al, in view of U.S. Patent Number 5,138,393 to Okamura, et al.

Bisbee, et al, discloses a transformer with a core; the core comprising:

- (1) In inner diameter and an outer diameter defining an open eye region in the center,
(Abstract)
- (2) A preformed L-Shaped insulation layer wrapped about the outer circumference of the core; the L-shape layer comprising a short part which would be placed about an end of the core and a long part wrapped about a circumference of the core, (figure 1A)
- (3) An epoxy tape adhesive to secure the L-shaped layer to the core; the adhesive is applied only to the ends of the core. (Figure 1A and column 1, lines 41-43)
- (4) A conductor winding wound on top of insulation layer. (Column 4, lines 43-46)

Bisbee, et al, discloses the claimed invention except for the insulation being a polymeric material.

Okamura, et al, discloses in the background of the invention a magnetic core formed by alternately laminating or winding a thin metallic film and an electrically insulating film made of a polymeric film such as polyimide film (abstract; column 1, lines 24-35).

One skilled in the art, at the time the invention was made, would have found it obvious to combine the teachings of Bisbee, et al, with the teachings of Okamura, et al, and utilize a polyimide protection layer in order to provide sufficient insulation.

Regarding claims 60, 62, 63, 65, and 67, Okamura, et al, further discloses that the core is formed by laminating or winding a thin metallic film and an electrically insulating film made of a

Art Unit: 2832

polymeric film such as polyimide film, which would then be heated and bonded (abstract; column 1, lines 24-35).

6. Claims 3, 4, 27, 28, 30, and 31 are rejected under 35 U.S.C. 103(a) as being obvious over U.S. Patent Number 5,353,494 to Bisbee, et al, in view of U.S. Patent Number 5,138,393 to Okamura, et al.

Bisbee, et al, discloses a transformer with a core/spool of magnetic material, which is formed by winding about a mandrel having the desired diameter. Further, he states that variations in the size of the core translate directly into variations in the length of the conductors. Directly, the length of conductors would affect the length of the sides of the protection layer. (Column 3, lines 31-50)

Bisbee, et al, discloses the claimed invention except for the specific size of the outer diameter and the specific length of the short leg. It would have been obvious to one having ordinary skill in the art, at the time the invention was made, to incorporate an outer diameter and a size of short leg necessary to satisfy the function of the protection member, since such a modification would have involved a mere change in size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955)

7. Claims 14, 15, 19, 20, 33, 34 rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Number 5,353,494 to Bisbee, et al, in view of U.S. Patent Number 5,138,393 to Okamura, et al, further in view of U.S. Patent Number 3,702,499 to Virsbreg.

Art Unit: 2832

Bisbee, et al, in view of Okamura, et al, discloses the claimed invention except for the dielectric strength.

Virsbreg discloses a method of manufacturing a coil comprising several turns of an insulated conductor and provided with at least one layer of insulating material surrounding all the turns, for example high voltage insulation having a dielectric strength of 2,000 volts. (Column 1, lines 5-10)

One skilled in the art, at the time the invention was made, would have found it obvious to combine the teachings of Bisbee, et al, in view of Okamura, et al, with the teachings of Virsbreg and incorporate an appropriate dielectric strength in order to decrease degradation of the protection layer.

8. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Number 5,353,494 to Bisbee, et al, in view of U.S. Patent Number 5,138,393 to Okamura, et al, further in view of U.S. Patent Number 6,137,390 to Tung, et al.

Bisbee, et al, in view of Okamura, et al, discloses the claimed invention except for the protective layer being comprised of polyethylene.

Tung, et al, discloses an inductive device with enhanced inductance and reduced electromagnetic inductance (EMI) interference, the device contains: (a) a magnetic core; (b) an electrically conducting coil wound about the magnetic core; and (c) a magnetic resin layer made of a polymer resin (the polymer resin being either a thermosetting resin such polyamide, polyimide, or epoxy resin, or a thermoplastic resin such as polyethylene or polypropylene). Superior unexpected results, including increased inductance and reduced EMI effect and magnetic leaks, were observed when a conventional inductor was formed with a layer of the magnetic resin embedding at least a portion of the outer periphery of the core and electrically conducting coil. (Column 3, lines 20-28)

Art Unit: 2832

One skilled in the art, at the time the invention was made, would have found it obvious to combine the teachings of Bisbee, et al, in view of Okamura, et al, with the teachings of Tung, et al, and use a thermoplastic resin such as polyethylene or polypropylene as the material for the protective member around the core structure in order to increase inductance and reduce EMI effect and magnetic leaks.

9. Claims 22 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Number 5,353,494 to Bisbee, et al, in view of U.S. Patent Number 5,138,393 to Okamura, et al, further in view of U.S. Patent Number 3,702,499 to Virsbreg as applied to claims 19 and 33 above, and further in view of U.S. Patent Number 6,137,390 to Tung, et al.

Bisbee, et al, in view of Okamura, et al, further in view of Virsbreg disclose the claimed invention except for the protective layer being comprised of polyethylene.

Tung, et al, discloses an inductive device with enhanced inductance and reduced electromagnetic inductance (EMI) interference, the device contains: (a) a magnetic core; (b) an electrically conducting coil wound about the magnetic core; and (c) a magnetic resin layer made of a polymer resin (the polymer resin being a thermosetting resin such polyamide, polyimide, or epoxy resin, or a thermoplastic resin such as polyethylene or polypropylene). Superior unexpected results, including increased inductance and reduced EMI effect and magnetic leaks, were observed when a conventional inductor was formed such that a layer of the magnetic resin embedding at least a portion of the outer periphery of the core and electrically conducting coil. (Column 3, lines 20-28)

One skilled in the art, at the time the invention was made, would have found it obvious to combine the teachings of Bisbee, et al, in view of Okamura, et al, further in view of Virsbreg, with the teachings of Tung, et al, and use a thermoplastic resin such as polyethylene or polypropylene as

Art Unit: 2832

the material for the protective member around the core structure in order to increase inductance and reduce EMI effect and magnetic leaks.

10. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Number 5,353,494 to Bisbee, et al, in view of U.S. Patent Number 5,138,393 to Okamura, et al, further in view of U.S. Patent Number 6,259,347 to Sines.

Bisbee, et al, in view of Okamura, et al, discloses the claimed invention except for the protective layer's stability at 150 degrees Centigrade for about 100 hours.

Sines discloses a transformer, which is surrounded by a high thermal-conductivity potting compound, such as a highly filled, castable epoxy system. Potting of the transformer core is accomplished by placing the completed wound copper-core in a mold in which potting compound is molded around the transformer core. The mold is cured for approximately two hours at approximately 100 degrees centigrade. (Column 3, lines 40-42)

Neither in the claim nor the specification, does the applicant fully support the conditions under which the material is held stable nor does the applicant reveal evidence as to why these conditions are beneficial to the system.

Although Bisbee, et al, in view of Okamura, et al, further in view of Sines does not disclose specifically "150 degrees Centigrade for at least about 100 hours", it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate most advantageous conditions, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

11. Claims 21 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Number 5,353,494 to Bisbee, et al, in view of U.S. Patent Number 5,138,393 to Okamura, et al, further in view of U.S. Patent Number 3,702,499 to Virsbreg, as applied to claims 19 and 33 above, and further in view of U.S. Patent Number 6,259,347 to Sines.

Bisbee, et al, in view of Okamura, et al, further in view of Virsbreg disclose the claimed invention except for the protective layer's stability at 150 degrees Centigrade for about 100 hours.

Sines discloses a transformer, which is surrounded by a high thermal-conductivity potting compound, such as a highly filled, castable epoxy system. Potting of the transformer core is accomplished by placing the completed wound copper-core in a mold in which potting compound is molded around the transformer core. The mold is cured for approximately two hours at approximately 100 degrees centigrade. (Column 3, lines 40-42)

Neither in the claim nor the specification, does the applicant fully support the conditions under which the material is held stable nor does the applicant reveal evidence as to why these conditions are beneficial to the system.

Although Bisbee, et al, in view of Okamura, et al, in view of Sines does not disclose specifically "150 degrees Centigrade for at least about 100 hours", it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate most advantageous conditions, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Allowable Subject Matter

12. Claims 56-58 and 69-72 are allowed.

13. Claims 7, 8, 24, 25, 38, and 39 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

14. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 7, 8, 24, 25, 38, 39, 56-58, and 69-72 no prior art of reference or combination thereof teaches a protection member wrapped circumferentially around a core; having first and second ends defining mating angles at an overlapping region when the protection member is wrapped around the core so as to extend around the entirety of one circumferentially extending sharp edge of the core WITHOUT a bump discontinuity at the overlapping region.

Response to Arguments

15. Applicant's arguments with respect to the above noted claims have been considered but are moot in view of the new ground(s) of rejection.

Further arguments are addressed below:

- (1) Objection to the specification (abstract) is withdrawn;
- (2) Objection so the drawings are withdrawn;
- (3) Rejections under 35 U.S.C. 112 second paragraph are withdrawn.

Conclusion

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 2832

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Poker whose telephone number is 703-305-4037. The examiner can normally be reached on 10:00-8:30 Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Elvin G. Enad can be reached on 703-308-7619. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1782.

Jap
November 4, 2003


LINCOLN DONOVAN
PRIMARY EXAMINER
GROUP 2109